GEOGRAPHIC SCHOOL BULLETINS

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Next week the Geographic School Bulletins take you almost to the other Pole, to see Army Engineer projects on and under Greenland's icecap.

"The coldest spot on earth"—Tom Abercrombie at the South Pole (see next pages)

ROBERT BENSON

cold and the wind, awed by my presence at this most unlikely place. I took time to fly the National Geographic Society flag under the Stars and Stripes as the first correspondent to set foot on the Pole.

As we strode back across the sastrugi (above), the wind-carved formations of snow that texture the barren plateau, the relentless climate began to show its effect on me. Before we reached the plane I was panting and puffing the rarefied air of the station's 9,200-foot altitude, while the wind-driven cold penetrated my improper garb. Both my cameras were frozen tight.

But that was a week ago. Since then when engine trouble grounded our plane, stranding us here, I have learned a lot about polar living. This delay, although a bad break for the Navy's schedules, was my good fortune. It gave me a chance to photograph the station's operations and get acquainted with the men.

From the very first we "tourists" were absorbed into the busy station routine. Long hours of heavy work out of doors accustomed us to the thinner atmosphere while the wintered veterans showed us the tricks of extreme cold weather dress. Often they would tease us, "Cold? You think this is cold. You should have been here the day it was minus 102!"

Earlier in the week when the Air Force dropped us parts and equipment to repair our airplane we all had to pitch in and help retrieve bundles with man-haul sleds. Both of the Pole's vehicles were out of commission. We hauled in huge engine heaters, five men to a sled, nearly a half mile from the drop zone to the camp. Once I became exhausted from pulling; my lungs couldn't seem to draw enough air into my chilled body and my legs folded under me. The others, plodding head-down into the wind pulled the heavy sled half over me before I could catch my breath to protest, pushing me and my already battered cameras into hard snow. After the haul we all looked like abominable snow men, our beards, faces, and even our eyelashes covered with ice from frozen breath.

After thawing out over a cup of hot coffee in the galley I strolled back into the radio shack (below). "We're working K2KGJ in New Jersey," said Cliff Dickey,

THOMAS J. ABERCROMBIE, NATIONAL GEOGRAPHIC STAFF

THOMAS J. ABERCROMBIE, NATIONAL GEOGRAPHIC STAFF

IGY scientist crunches over weird sastrugi toward base

LETTER FROM SOUTH POLE

Thomas J. Abercrombie, National Geographic writer and photographer, is the first journalist to stand on the South Pole. These thrilling photographs, just received, illustrate this letter to his son.

Dear Jon,

It was just a week ago that our Navy Neptune patrol bomber landed us here at the South Pole. This last leg of my 14,000-mile journey was an exciting flight. We crossed the Ross Ice Shelf, a vast frozen bay the size of Texas, and weaved our way up the black and rust colored mountains of the mighty Beardmore Glacier to the top of the polar plateau, through the most beautiful scenery in Antarctica. The plateau itself was anticlimactic, its beauty lying solely in its foreboding vastness. Indeed, it required skillful navigation to find the tiny station (tower in picture above) which lay nearly buried in the center of this monotonous void, larger than the United States.

Ours was the earliest landing yet made at the Pole—and the coldest. We stepped out of the plane into the —60 degree cold and were greeted by the 18 parka-clad men who had wintered over at this lonely IGY outpost. Our welcome was a warm one despite the temperatures. We were the first new faces these men of the Amundsen-Scott South Pole Station had seen in nine months.

Our tight schedule allowed us only an hour on the ground, giving me only time for a quick tour of the station's facilities and a hike out to the Pole itself, located a half mile the other side of camp.

As I stood on the sacred ground inside the large ring of empty oil barrels that marks the southern axis of the earth, I forgot, for a moment, the awful

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King-Size Queensland

GIANT AUSTRALIAN STATE DISPLAYS VARIED RICHES

HOWELL WALKER, NGS STAFF

Clinging to the topmost point of Brisbane City Hall's tower (right), 302 feet above traffic, a steeplejack could command quite a view. He would look down on tall office buildings and wide streets. He would be able to see the bends of the Brisbane River and the graceful bridges that span it. He would probably spot a freighter gliding upstream from Moreton Bay. He would get a good idea of the character of the capital city of Queensland, but a very limited impression of this king-size Australian state.

Brisbane's industries, public buildings, university, and generally cosmopolitan atmosphere are certainly a part of Queensland. But so too is Cape York Peninsula, nearly 1,500 miles away, where aborigines hunt lizards in a red earth wilderness that few white men have seen. Damp, fertile tablelands in the coastal mountains are part of the state. So is a blistering, bone-dry corner of the Simpson Desert. The fashionable debutante, sun-bathing at Surfers Paradise on the beach-lined coast, is a Queenslander. And so are leather-tough stock riders of the dusty cattle country, yipping at a mob of Herefords, below.

Queensland's area explains this diversity. Second only to Western Australia among the six Australian states, it fills most of the continent's northeast quarter. Texas would fit inside its boundaries twice—with room for most of California, too. Cut across the waist by the Tropic of Capricorn, it lies half in the Torrid and half in the South Temperate Zone.

As do all Australians, Queenslanders—there are about a million and a half of them—tend to congregate in towns. Brisbane holds some half a million. Other towns like Rockhampton, Townsville, Cairns, and Toowoomba feel the surge of population as the industry and commerce of the state begins to decentralize from the capital city. Only a comparative handful of people undertake the care of some 30,000,000 sheep and 5,000,000 cattle, the growing and harvesting of widely varied crops.

Little more than a century ago, most of Queensland was unexplored by white men. Farming was beginning to flourish along the coast, spreading north and south of Brisbane. The city, then a tiny trading village, lifted its eyebrows disdainfully at bronzed, booted planters and graziers who galloped in from outlying districts wearing broad-brimmed hats made of cabbage tree palm and jangling spurs the size of a silver dollar. But it was the success of these squatters (big land owners) that spelled out the future of the new land.

W. ROBERT MOORE, NATIONAL GEOGRAPHIC STAFF

PAUL A. SIPLE

navy electronics technician. "Would you like to call home?" That was the time I woke you and mother in the middle of the night, remember?

Nosing about the buried rooms and corridors of the station, I learned about the snow mine, a community project to supply the base with water and provide an excavation for the study of the polar glacier which is about a mile and a half deep. I volunteered to put in my time in the horribly cold mine.

A tunnel in the hard snow, 300 feet long and angling down to the depth of 90 feet, took us to the head of the mine. There, where the temperature stays minus 65 degrees the year round, Dr. Paul A. Siple, the station's scientific leader, showed me how to chip the hard-packed snow with a mountain climber's ice axe. We loaded the pieces of snow into discarded parachute bags and hauled them to the top with a winch. After an hour of chopping, shoveling, and lifting the 80-pound bags I was completely exhausted by the cold and elevation (see cover).

My main task, photographing the people here and their work, has turned out to be the most difficult assignment of my career. Cameras freeze up almost immediately at 65 below and lenses ice up whenever I go back indoors. One of my cameras has been ruined by the cold. By keeping one camera under my arm inside my parka while I shoot with the other I find I can expose as many as 72 pictures on one trip outside. Changing film outside is almost impossible.

It's nearly midnight now. The arduous schedule of the station's typical day has left me limp and the dazzling polar sun streaming in through the skylight confuses my sense of time. But here where all time zones of the earth come together the hours become meaningless. A "day" here lasts a whole year. A few weeks ago the men marked the dawn of 1957 (above) with the raising of the American flag for the first time since darkness fell six months and two weeks earlier. I've been here a week now but that's only part of a "polar day." As I glance out across the snow, the sun is blinding; it's hard to believe it's bedtime. *Love, Dad.*

NATIONAL GEOGRAPHIC PHOTOGRAPHER BATES LITTLEHALES

THE FLAG he flew at the South Pole is presented by Abercrombie to Dr. Melville B. Grosvenor, President of the National Geographic Society, in Explorers Hall at Washington headquarters.

Egrets Face Housing Shortage

HOUSES are going up all over Florida. But two of the State's most beautiful residents, the snowy and American egrets, are losing their wild, marshy homes in the process. As men drain swampland, cut timber, and develop real estate, they make the egret housing shortage ever more acute. The majestic waders are abandoning Florida for nesting sites in Latin America.

These snowy-white birds were nearly exterminated at the turn of the century by plume hunters who sought their feathers for elegant hats and ornaments. Their filmy feathers, aigrettes, sold for $32 an ounce, more than the going price of gold. Five or six birds were killed to provide plumage for one fashionable hat. Legislative battles raged before the slaughter was prohibited. When the controversial feathers began coming from abroad, bird lovers took the fight to Congress where their importation was declared illegal. Many a lady returning from Europe had her plumes impounded by customs.

HOMER RODE, JR.

Slightly larger than the snowy egret, the American egret steps daintily through Northern salt marshes and moss-hung cypress swamps of the South. As these birds collect virtually all their food from shallow water, their long legs, bare of feathers to a point near the body, make wading easy. When in flight, the American egret's wings stretch nearly five feet. It sails through the air, graceful as a clipper ship with canvas spread.

The smaller snowy egret, above, is one of the most active and pugnacious of herons. Its bill and legs are black, its toes yellow. It stands about two feet tall, with a wingspan of more than a yard. The nesting range of this egret extends from North Carolina southward along the coast to Florida and Texas and on through tropical America to Argentina and Chile.

A country cousin of these two egrets is the less glamorous cattle egret. While its rich relatives are moving south, the cattle egret immigrates from South America, possibly coming to this country from British Guiana. The report of this shift in the cattle egret's range appears in the *National Geographic Magazine* of August, 1954.

Fluttering around by grazing herds, these small alabaster egrets catch grasshoppers, flies, and beetles stirred up by cattle. Often they ride aboard, seeking parasites.

The cattle egret is the only Old World bird in history to establish residence on the mainland of the Americas without human aid. It appears to have come from Europe and Africa to South America, by the power of its wings—with help from favorable winds. The sturdy little vagabond has now established beachheads on every continent save Antarctica, where there are no cows.—K.C.

UMI

PAUL A. ZAHL

Pioneers still come to Queensland. Former Europeans slash into acres of ripe sugar cane along the Pacific coast. Many a British immigrant has exchanged the routine of catching London commuter trains for the uncertainties of battling bush fires on an isolated fruit plantation.

West of the so-called Great Dividing Range that splits all Australia into a well-watered coastal belt and a dry interior, rugged families raise wool and beef in the face of appalling loneliness. They communicate by pedal radio, depend on the Flying Doctor Service (GSB March 28, 1955), and drill wells sometimes more than a mile deep to water their stock.

In contrast with the dry, empty outback, is the coast, bright with beaches. Huge hotels have sprouted along beach resorts, luring vacationists from Sydney, Melbourne—and even the United States. Not far off the northeastern coast sprawls the Great Barrier Reef where visitors can splash across coral flats in search of strange shells, darting fish, and giant clams, above. A wealth of reef scenery is reproduced in the January, 1957, *National Geographic*.

But the state seems almost rich enough as it stands. Darling Downs, named for an early governor, snuggles among mountains near the New South Wales border—an area comprising about one one-hundredth of Queensland's bulk. Yet the Downs' black earth constitutes a third of all the state's croplands. Coal, vital for generating power in a land with few big rivers, almost lies on the surface in Queensland. The story goes that in the 1880's, men sank a 60-foot well at Blair Athol sheep station in the grazing country. Whether they found water isn't mentioned. But they hit a rich seam of coal which has grown into the Blair Athol opencut mine where coal lies nearer the surface than at any other rich deposit in the world.—E.P.

STRIP OF SUGAR CANE, white tasseled, looks like a snowdrift among bungalows and tropical poinsettias of Cairns. Distant fields lap foothills of Atherton Tableland

HOWELL WALKER, NATIONAL GEOGRAPHIC STAFF

rubber-tipped sticks, each section sounds a different note.

Oil fields and enormous refineries bulwark the Crown Colony's economic life. Oil-hungry England, its fleet converted from coal, turned to the island for oil during World War I. Now more than 2,000 wells produce the liquid treasure. Even so, other oil is imported to supply Trinidad's big refining capacity. Next in value comes sugar, providing work on large and small holdings for the greatest number of people.

Cacao and rum prove valuable products, as does asphalt from the famous Pitch Lake in southwest Trinidad. The natural deposit extends over 114 acres and fills barrels for export, above. From Port of Spain's old Spanish Quarter comes Angostura Bitters. Only in Trinidad is the savory ingredient produced for the world trade.

Trinidad ships out quantities of bauxite—although not itself an aluminum ore producer. Mined on the near-by mainland, the bauxite, because of shallow coastal waters, is sent in small vessels to Trinidad where it is stored and transferred to heavy freighters. Race horses show their speed at the track in Port of Spain's huge Queen's Park. Cricket, soccer, rugby, and lawn games enliven the parks on Saturdays, Sundays, and evenings. Cricket is the national sport, uniting all classes in a common enthusiasm.

Tropical fishing? At Sans Souci fishermen take off in 18-foot boats, about 40 privately owned ones operating as a fleet. As a good day's catch, all boats might return with around 7,000 pounds. From the blue waters, kingfish weighing up to 15 or 20 pounds are drawn on lines of copper wire—tempted to their end by baits of sardines.

But for hundreds of visitors from the north, pale and weary with winter weather, Trinidad means mostly one thing—a dazzling beach, below, deep blue sea, and rich green foliage. Such a sight drives January from the mind.—S.H.

MARACAS BAY became accessible when World War II Seabees built a road to its beach

Trinidad

Calypso Songs, Asphalt, and Bright Beaches Mark the Isle Columbus Named

Photographs by Charles Allmon, National Geographic Staff

Her hands gesture exquisitely. She chants a calypso folk song, gently lampooning some important person or event. Such gay singers keep alive the ballad-making skills of their island ancestors. They rank high among Trinidad's many charms at its bustling Caribbean crossroads location off the Venezuelan coast. Christopher Columbus reveled on the scenery when his ships of discovery arrived July 31, 1498, on his third voyage. He heard the unsociable Indians call their island "Land of the Hummingbird." He likened it to Valencia in Spain and named it for the Trinity Hills, three mountains on the southeast coast that are prominently seen from the sea.

Trinidad long since has become a mixing bowl of many nationalities and races. Signs in Spanish, English, Hindustani, Portuguese, and French invite trade into the shops of Port of Spain, the bustling capital and free port. Varying tastes may satisfy appetites with such exotic repasts as hot Indian curries, Creole sauces, and bird's-nest soup. Persons of East Indian and African descent are the two main elements in the island's approximately 700,000 population. The Indian group now numbers around 250,000, growing from a heavy influx of plantation labor in the 19th century. The famed calypso singers evolved from earlier-day slaves who were encouraged to beguile themselves with homespun ballads. Cultures otherwise reflect themselves in Moslem mosques and Hindu temples; in flooded rice fields worked by water buffaloes from India, alongside barelegged men in dhotis; in silver ornaments and diaphanous saris worn by Indian women.

Southernmost and second-largest island in the British West Indies (Jamaica is larger) Trinidad is roughly rectangular, 50 miles north-south, and 37 miles east-west. Broad arms reach out 10 miles from the northwest corner, and for 30 miles in the southwest. Between the arms lies the blue Gulf of Paria.

Festival-minded Trinidad folk swarm to town for carnival time just before Lent, filling the air with revelry. Marchers cavort through the streets of Port of Spain, many in outlandish costumes representing a month's earnings. Parade floats vie for attention with bands, bearing such names as Fish Eyes and Desperadoes.

Costumes left over from carnival are used again on Discovery Day, celebrating Columbus's arrival. Primitive rhythms throb. Musicians fashion instruments by denting and tempering sections on the tops of oil drums. When pounded with

similar rockets fly at the same speed and trajectory to hit the same spot.

Robert H. Goddard, an American physicist and inventor, began rocket experiments early in the 20th century. In 1926 one of his flimsy-looking devices wobbled skyward from a farm near Auburn, Massachusetts, marking a new chapter in the old story of rockets. For though it climbed only 41 feet, this rocket was the first to burn liquid fuel. It paved the way for present-day rockets with a steady, sustained thrust. Since they can carry oxygen—necessary for burning—in liquid form, they can soar far beyond earth's oxygen layer and still keep firing.

Dr. Goddard, now recognized as a grandfather of space travel, theorized that rockets could be joined together so that when the first stage ran out of fuel it would drop away and the next stage would begin blasting. He worked out that such a multistage rocket could reach a height of 580 miles—just about the point where the first Russian sputnik went into orbit. Goddard also foresaw flights to the moon.

Though liquid fuel and multistage rockets opened the door to space flight and the intercontinental ballistic missile, new hurdles have mushroomed to plague engineers. Liquid oxygen must, of course, be super cold. Hence valves tend to freeze in contact with it. Exposed, it quickly boils away. Coordinating the intricacies of three stages of rocket-firing mechanism slows down preparations for flights. Slight instability, the failure of one link in the chain of reactions that fire a rocket, can lead to such disasters as the recent failure of the Vanguard at Florida's Cape Canaveral.

Like all pioneers, rocket scientists are exploring a new realm and meeting hitherto unknown challenges. Before their long, slender vehicles can ever blast off with men inside, a good many "bugs" will have to be cleaned out.—E.P.

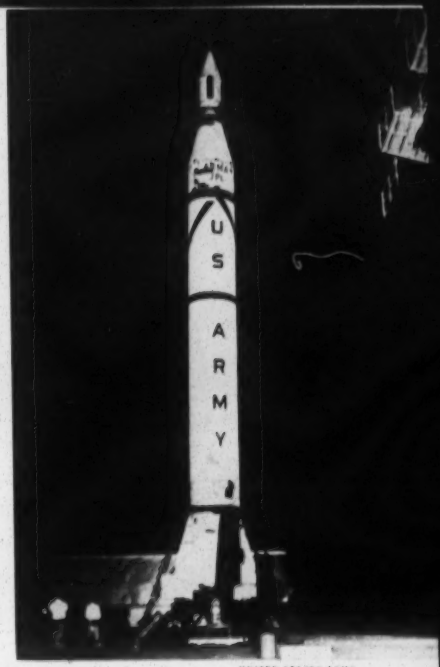
DR. GODDARD, left, helps assemble a nose cone. Re-entry was no problem to the father of modern rocketry since his pioneering devices never soared beyond earth's atmosphere

NATIONAL GEOGRAPHIC PHOTOGRAPHER B. ANTHONY STEWART

In a television speech a few weeks ago, President Eisenhower introduced the American people to a bulky, conical chunk of metal, standing on the rug beside his desk. This was the nose cone of a mighty rocket, recovered from the ocean after a test flight. Look carefully, and you will see the same type of cone on the U. S. Army's Jupiter missile, standing on its launching pad, right.

Jupiter's nose cone marked the victory of science over one "insurmountable" problem of long-range, high-speed rocket flight—the re-entry of a missile into the earth's atmosphere.

Although rocketry is 700 years old, as this story shows, it is only in recent years that the eyes and hopes of the world have turned on it. The old science is suddenly pioneering—and meeting problem after problem, all of them new, all of them seemingly "insurmountable." Gradually, scientists are solving these puzzlers.



UNITED STATES ARMY

Troubles + Tests = Rockets

A ROCKET'S nose cone must be built to withstand the shock and blazing heat of friction that a missile meets when it plunges into earth's blanket of atmosphere after a flight through the fringes of space. To design such a shock-resistant cone, scientists had to study first just what this re-entry problem is.

One engineering firm, for example, Avco Manufacturing Corporation, built an intricate, expensive shock tube 100 feet long. Engineers created a shock wave inside the tube that traveled more than 18,000 miles an hour, generating one and a half times the temperature of the sun's surface. Instruments allowed scientists to check electrical and chemical properties of this blistering shock wave and test its effect on aerodynamic shapes.

Only within the last few years have rockets been called upon to explore the beginnings of space and to defend nations. Their new role involves technical difficulties that were undreamed of when Chinese warriors in the city of Kaifeng blasted besiegers with rockets in 1232. For years thereafter, such self-propelled missiles burned solid fuel—gunpowder.

In 1790, Indian troops of the Prince of Mysore used them to cut up attacking British soldiers. The British caught on to the idea and developed 32-pound rockets that could howl through the air for a mile and a half. They helped British troops capture Washington, D. C., during the War of 1812 and their use against Fort McHenry in Baltimore Harbor inspired Francis Scott Key to slip the words, "the rockets' red glare" into our national anthem.

Problems cropped up and were met. The wooden tail of these early missiles—similar to those on Fourth-of-July skyrockets—gave way to fins. Americans used the improved version in the Mexican War. But solid fuel was a limiting factor. There was no way to control its burning, so rockets couldn't achieve long-sustained flights. Also, the fuel often varied in composition. Seldom did two

HOW TO SPEAK 18 LANGUAGES

We always try to write "deathless prose" for the *Geographic School Bulletins*. But we probably never came closer than in the April 16, 1928, issue. For we have just received a letter from Mr. Charles H. Bryce, who recalled a sentence in that issue. He wrote to ask if we would verify his memory of it.

The sentence was this. "The ugly thug loafed at a damask-covered table on the café balcony Wednesday eating goulash and drinking hot chocolate with a half-caste brunette in a kimono-sleeved, lemon yellow gown and a crimson Angora wool shawl, while he deciphered a code notation from a canny smuggler of silk cargoes on the back of the paper menu."

Do you know why Mr. Bryce remembered this sentence for 30 years?

It is because these words come from 18 languages, and indirectly represent many more. English is the most absorbent language in the world; it borrows from other tongues words that fit its needs. This is one of the reasons for the rapid spread and easy understanding of English throughout the world.

You probably know or can guess the countries which gave us certain of these words. Some are relatively new in our dictionaries; others have been with us nearly as long as our original Anglo-Saxon. Look at the list of language sources (or place origins) of this unusual sentence.

If you remember this sentence in 1988 you will become Mr. Bryce's mnemonic equal. Such a feat would help you appreciate why Mr. Bryce has remained a top-notch educator in Canadian public schools—one who, incidentally, believes that through the years the *Geographic School Bulletins* has unfailingly breathed a "fresh, sunny air" into classrooms, presenting authentic factual matter in a stimulating form "good for the morale of teachers."

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ugly—Old Norse
thug—Hindustani
loafed—origin uncertain
damask—from Damascus, Syria
covered, table, code, notation—Latin
café, brunette, menu—French
balcony—Italian
Wednesday, hot, eating, yellow, wool, sleeved, canny, silk—Anglo-Saxon via Middle English
drinking, half—Anglo-Saxon
goulash—Hungarian
chocolate—Nahuatl (old Mexican)
caste—Latin via Portuguese
lemon—Arabic
shawl—Persian
kimono—Japanese
gown—Late Latin
crimson—Sanskrit via Arabic
deciphered—Arabic via French
Angora—from Angora, old name of Turkey's capital
cargo—Spanish
smuggler—Low German
paper—Greek via Latin (from papyrus, an Egyptian plant)

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